

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of encoding a multi-channel signal including at least a first signal component and a second signal component, the first signal component being a principal component signal of a multi-channel source signal including a number of source signal components and the second signal component being a corresponding residual signal; the method comprising the acts of:

determining a set of filter parameters of a prediction filter such that the prediction filter provides an estimate of the second signal component when receiving the first signal component as an input;

controlling the prediction filter by an error signal indicative of a difference of the second signal component and the

estimate of the second signal component;~~and~~

representing the multi-channel signal as the first signal component and the set of filter parameters; and

transforming at least first and second source signal components of the multi-channel source signal by a predetermined transformation into the principal component signal including most of the signal energy and at least the residual signal including less energy than the principal component signal, the predetermined transformation being parameterized by at least one transformation parameter;

wherein the act of representing the multi-channel signal as the first signal component and the set of filter parameters further comprises the act of representing the multi-channel signal as the principal component signal, the set of filter parameters, and the at least one transformation parameter.

2. (Previously Presented) The method according to claim 1, wherein the act of determining the set of filter parameters comprises the act of determining the filter parameters such that the error signal is smaller than a predetermined value.

3. (Previously Presented) The method according to claim 1, wherein the act of representing the multi-channel signal as the first signal component and the set of filter parameters further comprises the act of representing the multi-channel signal as the first signal component, the set of filter parameters, and the error signal if the error signal is not smaller than a predetermined value.

Claim 4 (Canceled)

5. (Currently Amended) The method according to claim 1, further comprising the act of transforming at least ~~a~~ the first ~~source signal component~~ and ~~a~~ second source signal component components of ~~a~~ the multi-channel source signal into the first and second signal components.

6. (Currently Amended) The method according to ~~claim 5~~ claim 1, wherein the multi-channel source signal comprises a stereophonic signal including a left signal component and a right signal

component.

7. (Previously Presented) A method of encoding a multi channel signal including at least a first signal component and a second signal component, the method comprising the acts of:

determining a set of filter parameters of a prediction filter such that the prediction filter provides an estimate of the second signal component when receiving the first signal component as an input; and

representing the multi channel signal as the first signal component and the set of filter parameters; wherein

said first signal component is a principal component signal of a source multi-channel signal including a number of source signal components and the second signal component is a corresponding residual signal;

the method further comprises the act of transforming at least the first and second source signal components by a predetermined transformation into the principal component signal including most of the signal energy and at least the residual signal including less energy than the principal component signal, the predetermined

transformation being parameterized by at least one transformation parameter; and

the act of representing the multi-channel signal as the first signal component and the set of filter parameters further comprises the act of representing the multi-channel signal as the principal component signal, the set of filter parameters, and the at least one transformation parameter.

8. (Previously Presented) The method according to claim 7, wherein the predetermined transformation is a rotation and the at least one transformation parameter corresponds to an angle of rotation.

9. (Currently Amended) A method of encoding a multi channel signal including at least a first signal component and a second signal component, the first signal component being a principal component signal of a multi-channel source signal including a number of source signal components and the second signal component being a corresponding residual signal; the method comprising the acts of:

determining a set of filter parameters of a prediction filter such that the prediction filter provides an estimate of the second signal component when receiving the first signal component as an input;—and

representing the multi channel signal as the first signal component and the set of filter parameters; and

transforming at least first and second source signal components of the multi-channel source signal by a predetermined transformation into the principal component signal including most of the signal energy and at least the residual signal including less energy than the principal component signal, the predetermined transformation being parameterized by at least one transformation parameter;

wherein the act of representing the multi-channel signal as the first signal component and the set of filter parameters further comprises the act of representing the multi-channel signal as the principal component signal, the set of filter parameters, and the at least one transformation parameter, and

wherein the act of determining a set of filter parameters further comprises the act of determining at least one scaling

parameter for scaling the estimate of the second signal component such that a measure of correlation between the second signal component and the estimate of the second signal component is increased.

10. (Currently Amended) A method of decoding multi-channel signal information, the method comprising the acts of:

receiving a first signal component and a set of filter parameters of an adaptive filter controlled by an error signal indicative of a difference of a second signal component and an estimate of the second signal component, wherein the act of receiving the first signal component further comprises the act of receiving at least one transformation parameter, the first signal component corresponding to a result of a predetermined transformation of at least a first source signal component and a second source signal component of a source multi-channel signal, the predetermined transformation being parameterized by the at least one transformation parameter; and

estimating the second signal component using a prediction filter corresponding to the received set of filter parameters of

the adaptive filter, the prediction filter receiving the received first signal component as an input; and
generating a first decoded signal component and a second decoded signal component by inversely transforming the received first signal component and the estimated second signal component.

11. (Currently Amended) A method of decoding multi-channel signal information, the method comprising the acts of:

receiving a first signal component and a set of filter parameters; and

estimating a second signal component using a prediction filter corresponding to the received set of filter parameters, the prediction filter receiving the received first signal component as an input; wherein

the act of receiving the first signal component further comprises the act of receiving a transformation parameter, the first signal component corresponding to a result of a predetermined transformation of at least a first source signal component and a second source signal component of a source multi-channel signal, the predetermined transformation being parameterized by at least

the transformation parameter; and

the method further comprises the act of generating a first decoded signal component and a second decoded signal component by inversely transforming the received first signal component and the estimated second signal component.

12. (Currently Amended) An arrangement for encoding a multi-channel signal including at least a first signal component and a second signal component, the first signal component being a principal component signal of a multi-channel source signal including a number of source signal components and the second signal component being a corresponding residual signal; the arrangement comprising:

a prediction filter for estimating the second signal component, the prediction filter corresponding to a set of filter parameters and receiving the first signal component as an input, wherein the prediction filter is controlled by an error signal indicative of a difference of the second signal component and an estimate of the second signal component; and

~~processing means~~ a processor configured for representing the

multi-channel signal as the first signal component and the set of filter parameters including representing the multi-channel signal as the principal component signal, the set of filter parameters, and the at least one transformation parameter;

the processor being further configured for transforming at least the first and second source signal components by a predetermined transformation into the principal component signal including most of the signal energy and at least the residual signal including less energy than the principal component signal, the predetermined transformation being parameterized by at least one transformation parameter.

13. (Currently Amended) An arrangement for decoding a multi-channel signal corresponding to at least two signal components, the arrangement comprising:

receiving means for receiving a first signal component of the multi-channel signal, ~~and~~ a set of filter parameters of an adaptive filter controlled by an error signal indicative of a difference of a second signal component and an estimate of the second signal component, and at least one transformation parameter, the first

signal component corresponding to a result of a predetermined transformation of at least a first source signal component and a second source signal component of a source multi-channel signal, the predetermined transformation being parameterized by the at least one transformation parameter;

a prediction filter for estimating ~~a~~the second signal component of the multichannel signal, the prediction filter receiving the received set of filter parameters of the adaptive filter and the received first signal component as an input; and

a decoder configured to generate a first decoded signal component and a second decoded signal component by inversely transforming the first signal component and the estimated second signal component.

14. (Currently Amended) A data signal including multi-channel signal information, the data signal being generated by a method of encoding a multi-channel signal including at least a first signal component and a second signal component, the first signal component being a principal component signal of a multi-channel source signal including a number of source signal components and the second

signal component being a corresponding residual signal; the method
comprising the acts of:

determining a set of filter parameters of a prediction filter
such that the prediction filter provides an estimate of the second
signal component when receiving the first signal component as an
input;

controlling the prediction filter by an error signal
indicative of a difference of the second signal component and the
estimate of the second signal component;—and

representing the multi-channel signal as the first signal
component and the set of filter parameters; and

transforming at least first and second source signal
components of the multi-channel source signal by a predetermined
transformation into the principal component signal including most
of the signal energy and at least the residual signal including
less energy than the principal component signal, the predetermined
transformation being parameterized by at least one transformation
parameter;

wherein the act of representing the multi-channel signal as
the first signal component and the set of filter parameters further

comprises the act of representing the multi-channel signal as the principal component signal, the set of filter parameters, and the at least one transformation parameter.

15. (Currently Amended) A computer-readable medium comprising a data record indicative of multi-channel signal information generated by a method of encoding a multi-channel signal including at least a first signal component and a second signal component, the first signal component being a principal component signal of a multi-channel source signal including a number of source signal components and the second signal component being a corresponding residual signal; the method comprising the acts of:

determining a set of filter parameters of a prediction filter such that the prediction filter provides an estimate of the second signal component when receiving the first signal component as an input;

controlling the prediction filter by an error signal indicative of a difference of the second signal component and the estimate of the second signal component; ~~and~~

representing the multi-channel signal as the first signal

component and the set of filter parameters; and

transforming at least first and second source signal components of the multi-channel source signal by a predetermined transformation into the principal component signal including most of the signal energy and at least the residual signal including less energy than the principal component signal, the predetermined transformation being parameterized by at least one transformation parameter;

wherein the act of representing the multi-channel signal as the first signal component and the set of filter parameters further comprises the act of representing the multi-channel signal as the principal component signal, the set of filter parameters, and the at least one transformation parameter.

16. (Currently Amended) A device for communicating a multi-channel signal, the device comprising an arrangement for encoding a multi-channel signal including at least a first signal component and a second signal component, the first signal component being a principal component signal of a multi-channel source signal including a number of source signal components and the second

signal component being a corresponding residual signal; the
arrangement comprising:

a prediction filter for estimating the second signal component, the prediction filter corresponding to a set of filter parameters and receiving the first signal component as an input, wherein the prediction filter is controlled by an error signal indicative of a difference of the second signal component and an estimate of the second signal component; and

processing means a processor configured for representing the
multichannel signal as the first signal component and the set of filter parameters including representing the multi-channel signal
as the principal component signal, the set of filter parameters,
and the at least one transformation parameter;

the processor being further configured for transforming at
least the first and second source signal components by a
predetermined transformation into the principal component signal
including most of the signal energy and at least the residual
signal including less energy than the principal component signal,
the predetermined transformation being parameterized by at least
one transformation parameter.